

# **IMPROVING CHILDHOOD IMMUNIZATION LEVELS IN THE CITY OF MANCHESTER, NEW HAMPSHIRE**

**.....Recommendations for the Community**



## **A Special Report from the Manchester Immunization Group for Healthy Tots and Youth August, 2003**

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# Introduction

***“Immunization against childhood disease has arguably had a greater impact on human mortality reduction and population growth than any other public health intervention besides clean water”***

-Jeffrey Baker, MD, MPH, *American Journal of Public Health*, 2000

## ***Defining the Problem***

The decline in vaccine-preventable disease is one of the most significant public health achievements of the 20<sup>th</sup> century. Immunization can prevent the morbidity and mortality associated with infectious diseases, such as polio, measles, rubella and pertussis. However, in the City of Manchester up to 30% of toddlers may not be adequately vaccinated, and in some neighborhoods close to 40% of children lack adequate immunizations. Although major achievements have been made in reducing the incidence of vaccine-preventable diseases, many Manchester children continue to be at risk for diseases, which can be prevented by immunization.

Vaccines are biological substances that interact with the person's immune system to produce an immune response identical to that produced by natural infection. Vaccines can prevent the debilitating and in some cases, fatal effects of infectious diseases. Organisms, which are the cause of vaccine-preventable diseases, have not disappeared, rather they have receded and will reemerge if the vaccination coverage rates drop.

Vaccines protect more than the vaccinated individual. They also protect society. When vaccination levels in a community are high, the few who cannot be vaccinated are often indirectly protected because of group immunity. Vaccine coverage rates of at least 90% are usually sufficient to protect the public health.

Vaccines provide significant cost benefits. Three childhood vaccine including diphtheria, tetanus toxoid, and acellular pertussis vaccine (DtaP), measles, mumps and rubella vaccine (MMR); and *Haemophilus influenzae* type b (HIB) result in substantial direct medical savings for each dollar spent to vaccinate children against these diseases. Varicella vaccine saves roughly 90 cents in direct medical cost for every dollar invested. Indirect savings such as prevention of work loss by parents to care for ill children, prevention of lost earnings from disability and prevention of death demonstrates that vaccines routinely recommended are high cost saving. Savings range from \$24 for every dollar spent on DtaP to \$2 for the more recently approved HIB vaccine (Healthy People 2010, Volume I). Yet, an array of barriers continues to prevent youngsters from obtaining immunizations as recommended.

The strategies which will require implementation and enhancement in order to achieve an immunization level of 90% include the following:

- Improving the delivery and monitoring of vaccines
- Reducing the barriers to vaccination
- Partnering with the community and educational system to improve immunization levels
- Monitoring entry requirements for school and child care agencies
- Implementing state immunization registries

- Implementing professional and public educational campaigns

This document summarizes the scope of immunization status within the City of Manchester and provides specific recommendations to the community in terms of addressing and eliminating vaccine-preventable diseases.

### ***Milestones in the History of Vaccination***

The reduction in the incidence of vaccine-preventable disease is one of the major public health achievements in the past one hundred years. The significant milestones are outlined below:

1100s: Variolation for smallpox first reported in China

1796: Jenner inoculates client with cowpox and calls the procedure vaccination

1870: Pasteur creates the first live attenuated bacterial vaccine (chicken cholera)

1884: Pasteur creates the first live attenuated viral vaccine (rabies)

1901: First Nobel Prize in Medicine to von Behring for diphtheria antitoxin

1909: Methodology was discovered for inactivating diphtheria toxin

1933: Goodpasture describes a technique for viral culture in hen's eggs

1949: Isolation of Lansing Type II poliovirus in human cell line

1954: Measles virus isolated

1955: Inactivated polio vaccine was licensed

1963: Measles vaccine licensed

1966: World Health Assembly calls for the global eradication of smallpox

1977: Last indigenous case of smallpox (Somalia)

1979: Last wild virus polio transmission in the United States

1989: Two-dose measles vaccine recommended

1990: *Haemophilus influenzae* type B licensed

1991: Last wild poliovirus case in the Western Hemisphere; universal Hepatitis B immunization recommended

1994: Polio elimination certified in the Americas

1995: Varicella (**chickenpox**) vaccine licensed

1999: Exclusive use of inactivated polio vaccine (IPV) recommended

2000: Conjugate pneumococcal vaccine licensed for infants

2003: Pediarix (a vaccine combining diphtheria, tetanus, acellular pertussis, Hepatitis B and Polio) became available

As of 2003, the United States Centers for Disease Control continues to work toward the global eradication of polio.

### ***The Principles of Vaccination***

Active immunity to disease may be conferred by vaccination. Vaccines interact with the immune system and often produce an immune response similar to that produced by the natural infection, but do not subject the recipient to the disease and its potential complications. Vaccines produce immunologic memory similar to that acquired by having the natural disease.

Currently, there are two basic types of vaccines: live attenuated vaccines and inactivated vaccines. Live attenuated vaccines are derived from “wild” or disease-causing viruses or bacteria, which are attenuated or weakened in a laboratory setting. The current measles vaccine was isolated from a child with measles in 1954. Nearly ten years of serial passage on tissue culture media was required to transform the wild virus into vaccine virus.

In order to produce an immune response, live attenuated vaccines must replicate or grow within the vaccinated person. A relatively small dose of virus or bacteria is given to the recipient, which replicates within the body and increases to a volume large enough to produce an immune response. Although live attenuated vaccines replicate, they usually do not cause disease. When symptoms of disease does occur, it is generally much milder than the natural disease and is referred to as an adverse event. The immune response to a live attenuated vaccine is virtually identical to that produced by a natural infection. The immune system does not differentiate between an infection with a weakened vaccine and an infection with a wild virus. Live attenuated vaccines are usually effective with one dose, except those, which are administered orally. The live attenuated viral vaccines which are currently available include measles, mumps, rubella, vaccinia, varicella and yellow fever. Oral polio vaccine is a live viral vaccine but is no longer available in the United States.

Inactivated vaccines are produced by growing the bacteria or virus in culture media, then inactivating it with heat and/or chemicals. Inactivated vaccines can be composed of either whole viruses or bacteria, or fractions of either. Inactivated vaccines are not alive and cannot replicate. These vaccines cannot cause disease from infection, even in an immunodeficient person. Inactivated vaccines almost always require multiple doses. Usually the initial dose does not confer protective immunity, but only “primes” the immune system. Following the second or third dose, protective immunity will develop. Some inactivated vaccines may require periodic supplemental doses to increase or “boost” the antibody titers. Some examples of inactivated vaccines include influenza, polio, rabies, hepatitis A, acellular pertussis and diphtheria/tetanus toxoids (Centers for Disease Control and Prevention {CDC}, 2002).

Currently, there are twelve recommended childhood immunizations on the *Recommended Childhood Immunization Schedule, United States, 2003*. These include the following:

- Hepatitis B
- Diphtheria/Tetanus/Pertussis
- *Haemophilus influenzae* Type B
- Polio
- Measles/Mumps/Rubella
- Varicella (**chickenpox**)
- Pneumococcal conjugate
- Hepatitis A (in selected areas)
- Influenza

## ***Vaccine-Preventable Diseases***

### ***Hepatitis B Virus***

Hepatitis B virus (HBV) is transmitted through direct contact with infected blood and other bodily fluids. The virus may also be spread through tattooing and body piercing. A pregnant woman who is infected may transmit the virus to her unborn fetus. While most HBV infections result in complete recovery, fulminant hepatitis occurs in about 1% to 2% of persons, with mortality rates of 63% to 93%. Approximately 10% of all acute HBV infections progress to chronic infections. As many as 90% of infant who acquire HBV infection from their mothers at birth become carriers. Symptoms include loss of appetite, vomiting, stomach pain and swelling, jaundice, fever and headaches. Complications of the disease include permanent liver damage, cancer of the liver, cirrhosis and death.

Hepatitis B vaccines have been available in the United States since 1981. However, the impact of vaccine on hepatitis B disease has been less than optimal. The incidence of reported hepatitis B cases is now only slightly less than it was before the vaccine was licensed. The lack of impact from the vaccine can be attributed to several factors. From 1981 to 1991, vaccination was targeted to people in groups at high risk of HBV infection. A large proportion of clients with HBV infections deny any risk factors for the disease. The three major risk groups (heterosexuals with contact with infected persons or multiple partners, injection drug users, men who have sex with men) are not reached effectively by targeted programs and experience deterrents to accessing immunizations. A comprehensive plan to eliminate the transmission of hepatitis B virus was recommended in 1991 and includes a) prenatal testing of pregnant women for HbsAG to identify newborns who require immunoprophylaxis and to identify household contacts who should be vaccinated, b) routine vaccination of infants, c) vaccination of adolescents, and d) vaccination of adults at high risk of infection.

### ***Diphtheria***

Diphtheria is caused by the bacillus, *Corynebacterium diphtheriae* and is spread by direct contact with an infected person. The overall case fatality rate for diphtheria is 5-10%, with higher death rates (up to 20%) in persons < 5 and > 40 years of age. The symptoms of diphtheria include sore throat, fever, chills and difficulty swallowing. Most complications of diphtheria, including death, are attributable to the effects of the toxin. When absorbed, the toxin affects organs and tissues distant from the site of the invasion. The most frequent complications are myocarditis, neuritis, suffocation, paralysis, heart failure and coma.

Diphtheria was once a major cause of morbidity and mortality among children. From 1980 through 2000, 51 cases of diphtheria were reported in the United States. Although now rare, *C. diphtheriae* continues to circulate in areas with previously endemic diphtheria.

### ***Tetanus***

Tetanus (also known as lockjaw) is an acute, often fatal disease caused by an exotoxin produced by *Clostridium tetani*. Tetanus spores are introduced into the body, usually through a puncture wound. In recent years, tetanus has been fatal in approximately 11% of reported cases. The cases most likely to be fatal are those involving persons age  $\geq$  60 years of age and unvaccinated persons. An individual with tetanus presents with severe muscle spasms, including spasms of the vocal cords and muscles of respiration. Complications may include broken bones from the muscle spasms, difficulty breathing, severe heart damage, lung infections, coma and death.

A marked decrease in mortality occurred from the early 1900s to the late 1940s. In the late 1940s tetanus toxoid was introduced into routine childhood immunizations and tetanus became nationally reportable. After the 1940s, reported tetanus incidence rates fell steadily. An all-time low of 27 cases were reported in 2001.

### ***Pertussis***

Pertussis or whooping cough is an acute infectious disease caused by the bacterium *Bordetella pertussis*. The mode of transmission is primarily by direct contact with discharges from the respiratory mucous membranes of infected persons by the airborne route. The symptoms of pertussis include severe, paroxysmal coughing due to difficulty expelling mucus from the trachea. The paroxysmal attacks occur more frequently at night, with an average of 15 attacks per 24 hours. Pneumonia, seizures, brain damage and death may occur.

Prior to the availability of vaccine, pertussis was a common cause of morbidity and mortality among children. Following introduction of the vaccine in the 1940s, the incidence of pertussis gradually fell. From 1980-1990, an average of 2,900 cases per year was reported. Pertussis incidence has been gradually increasing since the early 1980s. The reasons for the increase are not completely clear, but may include a reflection of the 3-5 year cycle observed with the disease, an increased recognition of the disease or a change in reporting.

### ***Haemophilus influenzae type B (HIB)***

HIB is spread by droplet infection and discharges from the nose and throat during the infectious period. The portal of entry is most commonly the nasopharynx. In some individuals the organism invades the bloodstream and causes infection at distant sites. Invasive disease can affect many organ systems. The most common types of invasive disease are meningitis, epiglottitis, pneumonia, arthritis and cellulitis.

Before the introduction of the vaccine, *H. influenzae* was the leading cause of bacterial meningitis and other invasive bacterial disease among children < 5 years of age. The incidence of HIB has fallen 99% since the pre-vaccine era. The most recent cases were determined to be in unvaccinated or incompletely vaccinated children.

## **Polio**

Poliovirus is highly infectious and is transmitted from person to person, principally through the fecal-oral route. The virus replicates and spreads to the lymphatics and central nervous system. The response to poliovirus infection is highly variable. Some individuals may not experience symptoms but the virus may shed in the stool for several weeks, potentially exposing others to the disease. When symptoms do occur they include fever, severe muscle pain or spasm, headache or paralysis. Complications may include flaccid paralysis, deformities of the limbs, the inability to breathe and death.

During the early vaccine era, the incidence of poliomyelitis dramatically decreased following the introduction of the IPV vaccine in 1955. The decline continued following the introduction of OPV in 1961. The last cases of paralytic poliomyelitis caused by indigenous transmission of wild virus in the United States were in 1979. From 1980 through 1999, a total of 152 confirmed cases of paralytic poliomyelitis were reported. Six cases were acquired outside the United States. Two cases were classified as indeterminant. The remaining cases were vaccine-associated paralytic polio (VAPP) caused by live poliovirus vaccine. In order to eliminate VAPP from the United States, IPV is now used exclusively.

## **Pneumococcal Disease**

Disease caused by *streptococcus pneumoniae* results in widespread illness and death throughout the United States each year. Transmission occurs by droplet spread when infected individuals cough and/or sneeze. The major clinical syndromes of pneumococcal disease include pneumonia, bacteremia and meningitis. Pneumococcal pneumonia is characterized by an abrupt onset with fever, shaking chills, productive cough, pleuritic chest pain, rapid heartbeat and difficulty breathing. Pneumococci are also a common cause of acute otitis media.

The overall incidence of invasive pneumococcal disease in the United States is estimated to be approximately 21 cases per 100,000 population. The highest rates of invasive pneumococcal disease occurs in young children, especially those less than 2 years of age. In 2000, the pneumococcal conjugate vaccine, **Prevnar**, was licensed for infants. After four doses of pneumococcal conjugate vaccine, virtually all healthy infants develop antibody to all seven serotypes contained in the vaccine. In a large clinical trial, pneumococcal conjugate vaccine was shown to reduce invasive disease caused by vaccine serotypes by 97%, and reduce invasive disease caused by all serotypes, including those not in the vaccine by 89%.

## **Measles**

Measles is highly communicable with > 90% secondary attack rates among susceptible persons. The mode of transmission is primarily person to person via respiratory droplets. Airborne transmission has been documented in closed area (e.g., offices, examination rooms) for up to two hours after a person with measles occupied the area. The symptoms of measles include cough, coryza (runny nose) and/or conjunctivitis. Koplik's spots (a rash) may be present on mucous membranes. The measles rash, which begins on the face and head and proceeds downward and outward usually lasts 5-6 days. Complications include pneumonia, ear infections, brain damage, seizures and death.

Before 1963, approximately 500,000 cases and 500 deaths were reported annually. However, the actual number of cases was estimated at 3-4 million annually. More than 50% of persons



had measles by age 6 and more than 90% had measles by age 15. Following licensure of the vaccine in 1963, the incidence of measles decreased by more than 98%. In 1989 through 1991, a significant increase in measles occurred. The most important cause of the resurgence in measles was low vaccination coverage. Reported cases of measles declined rapidly after the 1989-1991 resurgence. This decline was due primarily to increase vaccination efforts. Available epidemiologic and virologic data strongly suggest that measles transmission in the United States has been interrupted. The majority of cases are not imported from other countries or linked to imported cases.

## ***Mumps***

Mumps is an acute viral illness acquired by respiratory droplet spread. The virus spreads to multiple body tissues including the meninges, salivary glands, pancreas, testes and ovaries. The patient may present with swollen glands and cheeks, fever and headaches. The complications of mumps includes damage to the central nervous system, swelling and inflammation of the testicles, sterility in male teens and adults, ovarian inflammation, pancreatitis and deafness.

An estimated 212,000 cases occurred in the United States in 1964. Mumps became a nationally reportable disease in the United States in 1968. Following the licensure of the vaccine reported mumps decreased rapidly. In 1986-87 there was a resurgence of mumps, with the highest incidence occurring in older school age and college age youth that were born before recommendations for routine mumps vaccination. Several mumps outbreaks among highly vaccinated school populations occurred indicating that high coverage with a single dose of mumps vaccine did not always prevent disease transmission. Since 1989 there has been a steady decline in reported mumps, which is most likely due to the implementation of the second dose recommendation for MMR vaccine.

## ***Rubella***

Rubella is a viral illness also known as "*german measles*". Following airborne transmission of rubella virus, the virus replicates and spreads throughout the body. Transplacental infection of the fetus occurs during this period with fetal damage occurring through cell destruction. In children, rash is usually the initial symptom. Other symptoms include fever, enlarged glands, malaise and upper respiratory symptoms. Complications include arthritis in adults, encephalitis and blood disorders. Infection with rubella virus may be devastating during early pregnancy. The virus may affect all organs and cause a variety of congenital defects including deafness, cataracts, heart defects, microcephaly, mental retardation, bone alterations and liver and spleen damage. Infection may lead to fetal death, spontaneous abortion or premature delivery.

Rubella and congenital rubella syndrome became nationally reportable in 1966. The largest annual total of cases of rubella in the United States was in 1969 when 57,686 cases (58 cases per 100,000 population) were reported. Following vaccine licensure in 1969, rubella incidence fell rapidly. By 1983, fewer than 1,000 cases per year were reported (< 0.5 cases per 100,000 population). Most reported rubella in the United States since the mid-1990s has occurred among Hispanic young adults who were born in areas where rubella is not routinely given. No large epidemics have occurred since the vaccine was licensed for use in 1969.

### **Varicella (Chickenpox)**

Varicella is a highly contagious, acute contagious disease (also known as *chickenpox*) which is caused by varicella zoster virus (VZV). The most common mode of transmission is believed to be person-to-person from infected respiratory secretions. Symptoms of varicella infection include fever, malaise, rash and pruritus. Complications may include secondary bacterial lesions of the skin, pneumonia, central nervous system manifestations and death. Infection with VZV may be particularly dangerous for teens and adults. Primary varicella infection in the first 20 weeks of gestation is occasionally associated with a variety of abnormalities in the newborn including atrophy of extremities, low birth weight, eye and neurologic abnormalities. Herpes zoster or shingles occurs when latent VZV reactivates and causes recurrent disease.

In the prevaccine era, varicella was endemic in the United States and virtually all persons acquired varicella by adulthood. The number of annual cases was estimated to approximate the birth cohort or approximately 4 million per year. Varicella was removed from the list of reportable conditions in 1991. Data from three active varicella surveillance areas indicate that the incidence of varicella, as well as varicella related hospitalizations have fallen significantly since licensure of the vaccine.

### **Influenza**

Influenza is a highly infectious viral illness. Airborne spread predominates among crowded populations in enclosed spaces. Transmission may also occur by direct contact since the influenza virus may persist for hours particularly in the cold and in low humidity. Symptoms of influenza include fever, chills, sore throat, muscle aches and nonproductive cough. Complications may include secondary bacterial pneumonia, inflammation of the heart and worsening of chronic pulmonary conditions. Death is reported in 0.5-1 per 1000 cases. The majority of deaths occur in persons  $\geq 65$  years of age.

An increase in mortality typically accompanies an influenza epidemic. Increased mortality results not only from influenza and pneumonia, but also from cardiopulmonary and other chronic diseases that can be exacerbated by influenza. The risk for complications and hospitalizations from influenza are higher among person  $\geq 65$  years of age, very young children and persons of any age with certain underlying medical conditions. An average of 114,000 hospitalizations per year are related to influenza. Influenza vaccine is effective in protecting up to 90% of healthy young adult vaccine recipients from illness when the vaccine strain is similar to the circulating strain. Although the vaccine is not highly effective in the prevention of clinical illness among the elderly, it is effective in the prevention of complications and death. (Source: Centers for Disease Control and Prevention, 2002)

### ***The Public Health Infrastructure: Local vs. State***

Public health infrastructure is the underpinning that supports the planning, delivery and evaluation of public health practices (Centers for Disease Control and Prevention, 1998). The core functions of public health are inherent within the strategies implemented by state and local public health to promote immunization. The core public health functions for local public health agencies as defined by the Institute of Medicine in the "*Future of Public Health*" in 1988, are outlined below:

- assessment, monitoring and surveillance of local health problems and needs and of resources for dealing with them;
- policy development and leadership that foster local involvement and a sense of ownership, that emphasizes local needs and that advocate equitable distribution of public resources and complimentary private activities commensurate with community needs; and
- assurance that high-quality services, including personal health services, needed for the protection of public health in the community are available and accessible to all persons; that the community receives proper consideration in the allocation of federal and state as well as local resources for public health; and that the community is informed about how to obtain public health, including personal health services, or how to comply with public health requirements

The report recommended that the public health duties of state governments should include the following:

- assessment of health needs in the state based on statewide data collection;
- assurance of an adequate statutory base for health activities in the state;
- establishment of statewide health objectives. Delegating power to localities as appropriate and holding them accountable;
- assurance of appropriate organized statewide effort to develop and maintain essential personal, educational, and environmental health services; provision of access to necessary services; and solution of problems inimical to health;
- guarantee of a minimum set of essential health services; and
- support of local service capacity, especially when disparities in local ability to raise revenue and/or administer programs require subsidies, technical assistance or direct action by the state to achieve service levels

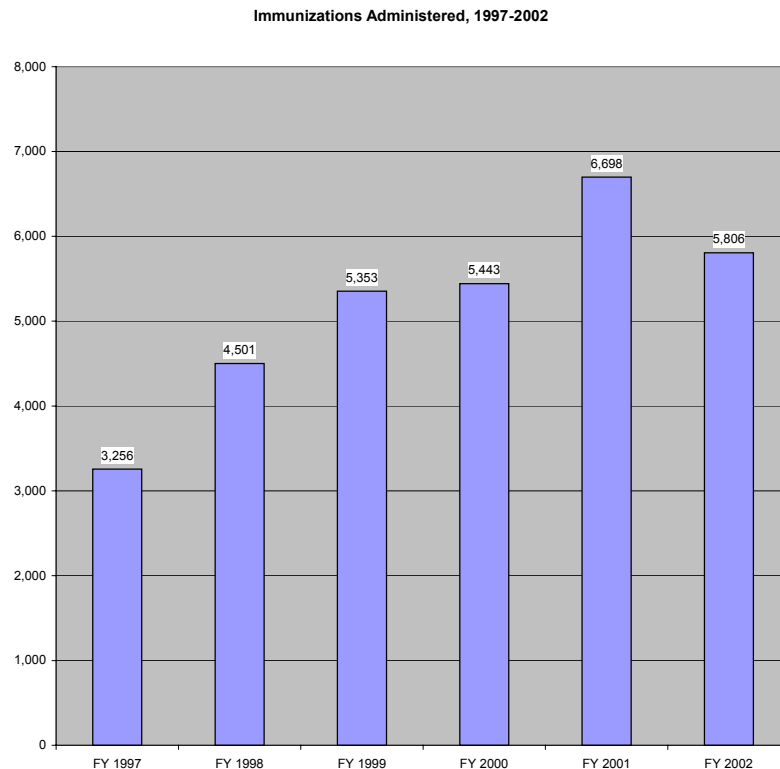
Immunization is one of the most significant public health achievements of the past century. Along with antibiotics, fortified foods and clean water, immunization is one of the public health advances which has extended life expectancy from 45 years in 1900 to more than 75 years today. However, in 2002 youngsters continue to be at risk for the occurrence of vaccine-preventable diseases.

The Centers for Disease Control and Prevention have identified at least ten public health challenges for the future. Included within the top ten challenges include the implementation of a competent health care system, the elimination of health disparities and a focus on children's emotional and intellectual development. These themes are closely linked with the challenges in achieving optimal immunization levels.

## Immunization Activities and Status

### *Immunization Activities in the City of Manchester: The Historical Perspective*

For many years, the Manchester Health Department provided immunizations at regularly scheduled clinics on Monday, Tuesday and Wednesday. The following graph represents the number of immunizations provided by the Manchester Health Department from 1997-2002.



### **1993-1994**

During the 1993-1994 school year a retrospective survey of school immunization records was done, indicating only 48% of Manchester's children were adequately immunized at 24 months of age. These data were the impetus for a funding request to enhance immunization activities and improve immunization levels. In 1994, the Manchester Health Department planned an Immunization Action Plan Conference. **The focus of the conference was to identify barriers to immunization, develop initiatives to improve immunization levels within the community and gain a commitment from the community to participate in a coalition to improve immunization rates. The Immunization Action Plan Conference was the impetus to acquire additional funding for immunization efforts and assisted in launching future coalition activities.** The Manchester Health Department also participated in the Hope for Kids Day, a one-day special immunization clinic and fair which was held concurrently with outreach activities in center city neighborhoods. It was during this time that the Manchester Community

Health Center opened, providing another avenue for underserved clients to access immunizations.

### **1995-1996**

In 1996 a Manchester Health Department Community Health Nurse was hired to coordinate immunization activities. The Manchester Immunization Group for Healthy Tots and Youth (MIGHTY) was formed shortly thereafter. With a designated Community Health Nurse coordinating activities, strategies were directed to increasing access to immunizations and promoting an awareness of the importance of immunization. The incumbent spearheaded the Immunization Action Plan Committee (now known as the Manchester Immunization Group for Healthy Tots and Youth) to develop community interest in immunizations into community action. In addition, other strategies included the expansion of clinics to off-hours and off-site locations, educational awareness campaigns, the development of a newborn tracking/reminder system, the development of an immunization record retention computer system and the **ability to facilitate satellite courses from the Centers for Disease Control and Prevention**. In 1996, the Neighborhood Public Health Van was introduced to the community, providing the opportunity to administer immunizations at a variety of locations during late afternoon and early evening hours. During the 1995-96 school year, a second retrospective survey was done indicating a 63.8% immunization level.

### **1997-1998**

“MIGHTY Moose” was adopted as the official mascot of MIGHTY. “MIGHTY Moose” provides entertainment for children, while promoting immunization messages. “MIGHTY Moose” is present at community events, parades and educational sessions.

The 1997-98 retrospective survey indicated a 66.2% immunization level. During this period of time, the Shots by Two Program commenced. The immunization reminder program is currently being implemented in collaboration with Elliot Hospital. **A school-based Hepatitis B catch up program was implemented to ensure that children born after 1993 were adequately protected against Hepatitis B.** School-based immunization clinics expanded to include Tetanus/diphtheria vaccine for eighth grade students and MMR vaccine for sixth grade students. In 1998, the Manchester Health Department was designated as a Civil Surgeon for immunization assessments/updates for refugees. This increased attendance at Immunization Clinics and presented unique challenges around language and cultural barriers.

### **1999-2003**

With the dawn of the new century, linkages were forged with the **NH Immunization Partnership** and the Parish Nurse Program to promote adult immunizations. The Recommended Adult Immunization Schedule was released in 2002, serving to reiterate the importance of adult immunizations. An increased emphasis on pneumococcal and influenza vaccine will enhance coverage levels and enhance the health of the adult population, particularly the elderly and those with chronic health conditions. A Flu Shot Coordination Committee is now spearheaded by the Manchester Health Department. The Manchester Health Department developed and disseminated the City of Manchester, NH Influenza Pandemic Emergency Response Plan in 2002. The Manchester Immunization Group for Healthy Tots and Youth continues to be active with the establishment of Healthy Manchester 2010 objectives and work on a number of collaborative projects to promote immunizations.

School requirements changed for the 2002-03 school year with 2 doses of MMR required for school entry. **Commencing on January 1, 2003 varicella vaccine was required for children 19 months of age and older who were enrolled in childcare agencies. Beginning in 2003-04, varicella vaccine or a history of the disease will also be required for entry into Kindergarten and Grade 6. School nurses in Manchester continue to be employed by the Manchester Health Department, providing opportunities to enhance public health initiatives and drive immunization rates.**

An increased emphasis was placed on immunization assessments within provider practices and childcare agencies. Auditing immunization records presents opportunities to assess immunization rates and provide education, when needed. School-based retrospective immunization surveys were completed in 1999/2000 and 2001/2002. Results indicated a 70% and a 76% rate, respectively.

As 2002 drew to a close, the Manchester Health Department engaged the community in planning the initial phase of the smallpox vaccination program. The initial draft of the post event mass vaccination plan was completed in the fall. Smallpox clinics commenced in Manchester during the spring of 2003.

### ***Immunization Status***

Significant progress has been made in reducing indigenous (not imported) cases of vaccine-preventable diseases (VPD's). Nationally, VPD's are at or near record-low levels. Most diseases have been reduced by more than 95 per cent from peak prevaccine levels (Healthy People 2010, Volume I). Yet, pockets of need continue to exist in many communities, including the City of Manchester. Although improving, immunization coverage levels are still not optimal.

The following tables outline the Retrospective Survey Results, 1993/94-2001/2002.

#### **PERCENT OF MANCHESTER CHILDREN FULLY IMMUNIZED AT 24 MONTHS OF AGE 1993/1994-2001/2002**

<b>School Year</b>	<b>Percentage of Children Immunized</b>
1993/1994	48.0%
1995/1996	63.8%
1997/1998	66.2%
1999/2000	70%
2001/2002	76%

% immunized: DTP/DTaP 4, Polio 3, MMR 1

## RETROSPECTIVE SCHOOL IMMUNIZATION SURVEY RESULTS 2001/2002

School	Percentage of Children Immunized
Title One Schools	71%
Catholic Schools	85%
<b>Other Public Schools</b>	<b>79%</b>
<b>Total</b>	<b>76%</b>

### ***Immunization Programs Within Other Communities***

#### ***Dane County Immunization Coalition, Madison, Wisconsin***

Dane County Immunization Coalition, Inc. (DCIC) was established in 1993 and incorporated in 1998. DCIC provides a forum to unite individuals and groups with the shared mission of facilitating the improvement of childhood and adult immunizations. The measles epidemic of 1989-1991 and concurrent low reports of low immunization coverage levels among toddlers highlighted the need for such collaboration. The accomplishments included two award-winning commercials, "Don't Block the Shots!" and "Immunize for Life!" focusing on hepatitis B and influenza immunizations. In addition, DCIC established the *Roll up Your Sleeves Project* in 1996 to provide a school-based system for offering hepatitis B vaccine for sixth grade students. *Immunization Pearls*, a newsletter for health care providers is also published by DCIC. Lessons learned from the coalition include the need for developing evaluation measures.

#### ***Milwaukee, Wisconsin***

The Milwaukee Health Department "All Kids Count" immunization program is comprised of key institutions and organizations in the community working with the Department to raise childhood immunization levels. Studies indicate that immunization levels for two-year-old children have increased from 39.3 % to 70% since 1988. A media campaign was launched in 1995 entitled "Gimme Five....Immunize" to emphasize the number of clinic visits needed for immunization by age 2. A mobile van took to the streets in 1995 and coordinated community outreach work continues. An immunization registry is also close to becoming a reality.

#### ***Norfolk, Virginia***

The Browning Health Ambassador program was piloted in Grandy Village Community, Norfolk, Virginia. Residents of a public housing development were trained as lay health ambassadors to provide door-to-door outreach. The goals were three-fold: to facilitate access to childhood immunizations, promote and facilitate access to a "medical home" for all children and increase access to adequate insurance coverage for all children. Funding sources included the establishment of an Endowment Fund, partnering with Grandy Village Tenant Management Corporation to secure the Resident Opportunity and Self-Sufficiency (ROSS) Grant and linking with the Norfolk Redevelopment and Housing Authority and the Department of Health to provide in-kind supplies, training and program development. The Browning Health Ambassador Program reached 99% of families, with 42% of families reporting the program facilitated access to childhood immunizations. Twenty-nine per cent (29%) of families reported the program assisted them to locate a medical home, with 27% reporting that the program facilitated access to health insurance for their children.

### ***Rhode Island Childhood Immunization Program***

The Rhode Island Childhood Immunization Program in partnership with the Rhode Island Childhood Immunization Action Coalition developed the *Vaccinate before You Graduate (VBYG) Program*. VBYG is a free immunization program offered at local high schools for all seniors with the goal to ensure youth are protected against vaccine-preventable diseases before they graduate. The program components are three-fold: promote awareness among parents regarding vaccine-preventable diseases and obtain consent for immunization, provide an educational component to teach students about the importance of immunization and the prevention of vaccine-preventable diseases, and provide immunization clinics within the school settings. The vaccines which are provided include Hepatitis B, MMR, Td, varicella, meningococcal, and polio vaccines.

### ***Massachusetts WIC Program***

To facilitate immunizations, improve the accuracy of immunization assessments and reflect more accurate immunization rates, two incentive campaigns were designed for the Massachusetts WIC Program. A financial incentive totaling \$50,000 was designated to be shared by local WIC Programs for funds to purchase computers that allow WIC staff easy access to client's immunization data and to hire staff to assist in immunization data collection. The second incentive, *Bring a Book-Get a Book* was aimed at WIC clients. The Massachusetts WIC Program received funds for the purchase of 50,000 Golden Books to be given to parents/caregivers as an incentive to bring their children's shot records in for WIC certification, recertification and individual follow-up appointments. Participants received a book each time they brought new immunization data to WIC appointments until they completed the primary series of shots. Data was collected from a variety of sources including the personal immunization record, a WIC Immunization Release Form completed by a provider, a medical record or immunization registry. A monthly retrospective report was utilized to monitor progress. The immunization coverage rates of children at 254 months increased by 10%, from 49% to 59%.

### ***The Arizona Partnership for Infant Immunization (TAPII)***

Following the resurgence of measles in 1989-1991, the Arizona Department of Health Services (ADHS) developed a statewide immunization initiative plan to completely immunize 90% of all children by 2 years of age by the year 2000. ADHS formed a task force to carry out the plan. The task force of more than 100 members formally became the Arizona Partnership for Infant Immunization (TAPII).

TAPII is a public-private partnership intended to achieve an infant immunization goal of 90%. TAPII developed five subcommittees including advocacy and policy, community awareness, provider awareness, survey and assessment, and strategic planning. Advocacy and Policy worked on keeping local, state and federal policy makers informed about barriers to immunization. Community awareness members educated families about the importance of immunizations through a media initiative known as "Baby Shots, A Healthy Dose of Love", the development of a speaker's bureau and a statewide hotline. Provider awareness members informed health care providers about immunization schedules, vaccine availability and vaccine management. The survey and assessment committee developed methodologies for measuring immunization levels and identified the need for a central statewide immunization registry.



Members of the strategic planning group addressed long-range issues including revisiting the mission statement and objectives and planning for future funding.

A key accomplishment of TAPII has been the development of a statewide infant immunization registry known as the Arizona Statewide Immunization Information System. The registry facilitates up to date immunizations of children and improves statewide immunization assessment capability. A “Make Every Visit Count” tool kit was also developed for providers, which included an immunization information quiz, a record review kit and a guide to assess implementation of the Standards for Pediatric Immunization Practices.

Since the advent of TAPII, infant immunization rates within private managed care plans have increased. TAPII has been a successful partnership for a number of reasons: private sector participation, a single and measurable goal, vision and leadership, a strong emphasis on assessment, a broad membership, community ownership, the participation of the Governor’s Office, health plan involvement and full-time project staffing.

### ***Richland Lexington Immunization Coalition, Columbia, South Carolina***

Led by Hope for Kids-South Carolina, the Richland Lexington Immunization Coalition was founded in April 1994. The coalition consists of more than forty agencies that collaborate to promote immunization awareness in both adults and children. The coalition has reached over 150,000 children and families with health care information. Immunizations are promoted through monthly outreach programs, public awareness campaigns and focused events. Coalition members include the South Carolina Legislative Partners, Columbia Housing Authority, Richland City Council, UPS, McDonald’s, Bank of America, the Mayor’s Office, and health care insurance providers. The coalition’s activity highlights and accomplishments included the *Help Erase Hepatitis B* campaign which provided education and hepatitis B immunizations to over 4,000 children in four middle schools, the *Missed Immunization Appointment Program* which was able to reach 85% of the indigent population in the targeted communities and free shot vouchers and incentives.

### ***Phoenix, Arizona Baby Shots Program***

**In 1994, members of the Phoenix Fire Department discovered that the percentage of children appropriately immunized in Arizona was extremely low. Having been proactive in meeting the needs of the community, a free childhood immunization program was developed and implemented. The Baby Shots Immunization program has grown tremendously since its inception from one “special immunization event” to several regular clinic sites. Program growth is attributed to clinic environments, which are user-friendly. Through community partnerships, clinics are held at community centers, schools, hospitals and shopping malls all with easy access. The majority of firefighters and nurses working at the clinics are bilingual and all printed materials are in English and Spanish. Clinic hours are on weekends and late weekday afternoons to accommodate working parents. The Arizona Department of Health Services Immunization Program reports that immunization coverage rates in Phoenix are approximately 68% and would be significantly reduced without the Phoenix Fire Department Baby Shots Program.**

### ***Northern Manhattan, New York City***

In 1995 a community-provider partnership was launched to raise immunization coverage for children aged younger than 3 years in Northern Manhattan, New York City. The partnership was directed at enhancing provider knowledge and accountability, improving practices and fostering community outreach. As of 1999, the partnership included 26 practices and 20 community groups. From 1996 to 1999, immunization coverage increased in Northern Manhattan five times faster than in New York City and eight times faster than in the United States. In 1996, before the Northern Manhattan Immunization Partnership commenced, immunization coverage in Northern Manhattan was 45.8%, which was 30.7% lower than in the United States and 29.2% lower than in New York City. By 2000, the disparities had been reduced. Immunization rates in Northern Manhattan were 18.8% lower than in the United States and 10.7% lower than in New York City. Annually, the rate of increase in coverage between 1996 and 1999 was greater in Northern Manhattan than in the United States and New York City.

System improvements in immunization delivery included practice-specific report cards, flow sheets, summarizing information about all immunizations provided to a child, reminder/recall, standing orders, centralized immunization policies and parent vaccination cards. Educational programs for providers, nurses and office staff was also implemented. A Web-based immunization registry was launched at hospital affiliated practices and expanded to community provider offices. Concurrently, other outreach efforts were expanded with the development of bilingual immunization materials, linkages with the WIC Program, parent feedback surveys on immunization barriers, the development of the Northern Manhattan Start Right Coalition community action plan including mobilization of parents through child care agencies, tenant's associations, parenting classes, churches and WIC, and the enrollment of children in the Child Health Insurance Program.

### ***Immunization Registries***

Registries are confidential, population-based, computerized information systems that collect vaccination data for children within a specific geographic area. Registries are a critical tool that can increase and sustain vaccination coverage rates. There are several benefits to registries including:

- Consolidation of all vaccines a child has received into one database
- Ensuring a child's vaccinations are current with recommended schedules
- Providing reminders when a vaccine is due
- Providing recalls when a vaccine is missed
- Ensuring timely vaccines for children whose families move or switch health care providers
- Preventing unnecessary, duplicative vaccinations
- Providing an accurate, official copy of a child's immunization history for day care, school or camp entry
- Reducing staff time lost to tracking down immunization records

The National Vaccine Advisory Committee strongly encourages the development of community-based or state-based immunization registry systems. A 95% participation of children < 6 years

of age in an immunization registry is a national health objective for 2010 (MMWR, *General Recommendations on Immunization*, February 8, 2002).

The State of Rhode Island has the highest immunization coverage rate in the United States, which is currently at 90%. The Kids Net Immunization Registry collects and manages immunization data for the entire State of Rhode Island. Rhode Island's comprehensive system coordinates screening, tracking, risk response, follow-up and home visiting services for nine different infant/toddler programs including immunizations, lead screening and WIC.

## **Determinants Impacting Immunization Levels Within the Community**

***“The American Academy of Pediatrics believes that the medical care of infants, children and adolescents ideally should be accessible, continuous, comprehensive, family centered, coordinated, compassionate and culturally effective.”***

-1992 AAP Policy Statement

Recent data suggests that socioeconomic status related disparities in health status within the United States population have increased over the past decade. The disparities include a higher prevalence of life-style related risk factors for disease (e.g., tobacco use), lower rates of involvement in activities which promote health, a failure to use preventive health services and less access to health care. In addition, there are higher rates of illiteracy which make messages promoting health less accessible, as well as social stressors which can impact biological and psychosocial functioning (NIDR, 1997). Disparities in health status may persist even when barriers to health care are lessened by the implementation of low-cost or no-cost health insurance.

### ***Poverty***

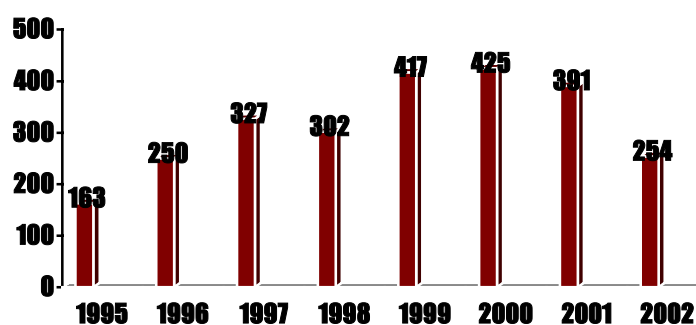
Efforts need to be intensified, particularly to increase vaccination coverage for children living in poverty. Substantial numbers of undervaccinated children remain in some areas, creating concern due to the potential for outbreaks of disease. As of 2000 in Manchester, 15% (3,708) of children ages 17 and younger were living below poverty. In addition, an even greater number of families are living below 200% of poverty (defined as income twice the “living below poverty level” threshold), who are often referred to as the “working poor”. As of 2000, 32.9% (8,147) of children ages 17 years and younger were living below 200% of poverty. Families living in poverty may face barriers, which may impede their ability or desire to seek preventive health services. Transportation, the cost of insurance co-pay at their health care provider’s office or inconvenient clinic times may all present obstacles to immunization. In addition, parents or legal guardians may work several jobs or may be unable to take leave away from work to bring youngsters for preventive care, as they may not receive monetary compensation for such time away from their jobs.

### ***Racial and Ethnic Disparities***

Historically, childhood vaccination rates have been lower in certain racial and ethnic populations, compared to the white population. The City of Manchester has had a heritage steeped in ethnic and cultural diversity. Recent shifts within the past decade have greatly impacted health care within the community and a family’s ability to access the health care system. Barriers include language, transportation, financial issues, cultural influences and issues around trust. The City of Manchester is a major refugee resettlement area. Refugees are defined as persons who are outside their countries of origin, but not yet in the United States, who have a well-founded fear of persecution because of race, religion, nationality, political opinion or membership in a social group. The resettlement agencies include the International Institute of NH, Catholic Charities and Lutheran Social Services. Since 1996, more than 2,000 new arrivals have resettled within the community from countries of origin, which include Bosnia,

Iraq, Kosovo, Nigeria, Russia, Sudan and the Ukraine. In addition, the Hispanic population continues to grow. The 2000 Census Data reports that there are 4,944 Hispanic Americans residing within the City of Manchester, representing 4.65% of the population.

### **Refugee New Arrivals, 1995-2002**



### ***Access to Health Care***

Access to health care indicates the ability to obtain appropriate, affordable, comprehensive health care in a timely fashion on a 24-hour basis, including referrals for special service needs. The goal in the use of personal health services is to achieve the best possible health outcomes. The New Hampshire Healthy Kids Program provides low cost or no cost health insurance for children, but families are still challenged with navigating the systems, which may be complicated or overwhelming. An estimated 2,500 children in Manchester do not have adequate access to health care. Hospital emergency departments in Manchester continue to be over-utilized by those seeking primary care, illustrating the lack of access to the system and leading to inappropriate medical care. In 2002, there were 13,337 pediatric visits to local emergency departments, with 77.1% of the visits being for primary care issues.

A survey was sent to all pediatric and family practices in Greater Manchester, with 14 practices responding. The survey indicated that 58,661 children were enrolled in practices, with the potential physician capacity being 63,800. Eleven out of fourteen practices continue to accept new patients. Ten practices continue to accept new Healthy Kids Gold patients. Interpretive services are provided by nine practices. Three practices offer and/or facilitate transportation with four offering on-site social services and/or case management. Five practices are open during evening hours, with four offering weekend hours. These data indicate capacity within the health care system to provide primary care services to all children in Manchester.

Although the Healthy Kids Program has been a panacea for some, many families who have financial coverage for health care still encounter barriers to accessing the health care system. Although families may identify a health care provider and have access to the Healthy Kids Program it does not necessarily mean they will visit the health care provider for preventive health services. Disparities in health status may persist even when barriers to health care are lessened by the availability of low-cost or no-cost health insurance.

## ***Vaccine Myths/Concerns***

Certain parents or patients question the need for or safety of vaccines. A limited number of individuals might have religious or personal objections to vaccinations. Other individuals may demonstrate a **lack of understanding** about the importance of immunization. Each person understands and reacts to vaccine information on the basis of different factors which include prior experience, education, personal values, method of data presentation, perceptions of the risk for disease and the perceived ability to control those risks. The media and non-authoritative Web sites have promulgated inaccurate information regarding vaccines, leading individuals to make decisions based on misinformation.

Direct dialogue between parents and health care providers can prevent the acceptance of inaccurate information as scientific fact. Effective, empathetic vaccine risk communication is essential in responding to inaccurate information. The most effective strategy in dealing with clients who are opposed or concerned about vaccine safety is to identify common ground and discuss measures that need to be implemented if the individual opts to defer vaccination. Health care providers must reinforce key points regarding each vaccine, including benefits, safety, and the risks encountered by children who are not immunized (Source: MMWR. *General Recommendations on Immunization*, February 8, 2002).

## ***Homelessness***

The paucity of safe and affordable housing in Manchester has contributed to an increase in the number of homeless families in Manchester. In March 2002, Manchester's service providers identified 1,635 homeless families in a one-day count. While some stay at homeless shelters and transitional housing facilities, others become the invisible homeless, illegally sharing another renter's apartment, often in unsafe or crowded conditions. The Way Home, a homeless prevention agency specializing in housing safety to protect the health of children received calls for assistance from 87 homeless families with children under the age of six from July 2001 through March 2002. Low income and minority families confront numerous roadblocks to safe and affordable housing (Source: The Way Home, 2002) These same families may also encounter barriers to the health care system and linking with preventive health services.

Varying interpretations of homelessness, school placement and New Hampshire residency law regarding homeless students has led to confusion and in certain instances have prohibited youngsters from enrolling and attending school. The Stewart B. McKinney Homeless Assistance Act, Subtitle VII-B: Education of Homeless Children and Youth protects homeless children and youth from being excluded from school enrollment due to the nature and impermanence of their residences. A homeless child has the right to a free, appropriate public education, to remain in their school of origin and have access to immediate enrollment, even when school or medical records cannot be produced immediately. Homelessness may prevent youngsters from receiving immunizations on a timely basis. In addition, families who remain transient due to the loss of their home may be unable to seek preventive health services and may be unfamiliar with the community's immunization services.

## Improving Childhood Immunization Levels Within the City of Manchester

The Manchester Immunization Group for Healthy Tots and Youth commenced work on the development of a community action plan in 2002. The group identified a number of issues relating to low immunization levels within the community. The issues are as follows:

1. Although improving, immunization levels for Manchester children at 24 months of age remain suboptimal **at 76%, placing many youngsters at risk for vaccine-preventable diseases. Currently, the immunization coverage rate for the State of New Hampshire is 83.5%.**
2. There continues to be misperceptions that vaccines are no longer important and growing concerns that vaccines are not safe.
3. Non-medical barriers exist that may limit access to and utilization of the health care system, preventing children from accessing immunizations.
4. There is a lack of a systematic approach to assessing immunization levels within the community.
5. Health care delivery is unavailable and/or fragmented, which may lead to duplication of services.
6. The community has experienced a shift in cultural and linguistic diversity, which presents challenges in obtaining immunizations.

Keeping in mind the aforementioned issues, the Manchester Immunization Group for Healthy Tots and Youth **developed Healthy Manchester 2010 objectives, goals and recommended actions for the community to reach a 90% immunization coverage rate.**

### **Healthy Manchester 2010 Objective**

Increase the percentage of two-year-old children who receive all universally recommended vaccines.

Baseline: 76% (2002)

Manchester Target 2010: 90% for 2 and 3 year old children

### **Healthy Manchester 2010 Objective**

Increase the percentage of children at school entry who receive all recommended vaccines.

Baseline: 98.4% (2001) for required vaccines

Healthy Manchester 2010: **In development**

### **Healthy Manchester 2010 Objective**

Increase the percentage of adolescents who receive all recommended vaccines.

Baseline: 99% for grades one through twelve (2001) for required vaccines

Manchester Target 2010: **In development**

### ***Increase and sustain public awareness about the importance of immunizations in preventing disease***

- Support and expand the Manchester Immunization Group for Healthy Tots and Youth (MIGHTY). Including representation from local businesses and elected officials.

As a response to the low immunization levels within the City of Manchester, MIGHTY was formed to link community stakeholders to enhance immunization coverage rates. Comprised of a committed membership, MIGHTY developed the following mission statement:

*“The Manchester Immunization Group for Healthy Tots and Youth is composed of representatives from the community, public and private health care, service agencies and businesses. The coalition has been established to increase the immunization levels of children and youth, 18 years of age and younger.”*

- Continue educational efforts on the importance of immunizations to the medical community, parenting groups, childcare agencies, schools and the general public.
- Continue participation in anti-vaccine forums and vaccine safety conferences.
- Continue to raise awareness for all community members, particularly parents and health care providers regarding the Centers for Disease Control and Prevention Recommended Childhood Immunization Schedule.
- Continue to encourage local businesses to participate in the Manchester Immunization Group for Healthy Tots and Youth.

### ***Future Opportunities***

- Develop a resource manual addressing the importance of immunizations and where immunizations are available for the general public. The manual will be available in several languages.
- Present the recommendations of the Community Action Plan to local health coalitions, the medical community, community-based organizations, to elected officials and the general public.
- Enhance the websites of immunization providers with current and timely vaccine information.



- Expand linkages with the Parish Nurse Program and Parish Councils to promote an awareness of the importance of immunizations.
- Work with local businesses in providing immunization messages at the workplace, particularly those, which employ the non-English speaking population.
- Develop a speaker's bureau and a hotline for immunization information.
- Implement a coordinated marketing campaign which will include, but not be limited to:
  - A theme to promote immunizations in Manchester, NH, similar to "*Gimme Five....Immunize*" in Milwaukee, Wisconsin.
  - Media participation in MIGHTY meetings
  - Utilization of the community bulletin board on Manchester Community Television
  - A coordinated schedule of press releases
  - The development of public service announcements
  - Immunization messages on buses and city vehicles
  - Immunization messages at community events such as multicultural festivals, those sponsored by faith communities, and businesses which employ minorities
  - Bi-annual editions of the Manchester Health Department *Our Public Health* show
- Develop systems improvement in immunization delivery with a multi-pronged approach such as the community-provider partnership in utilized in Northern Manhattan with reminder-recall activities, standing orders, parent vaccination cards and mobilization of parents through linkages with community-based agencies.

### ***Identify and Work to Eliminate the Barriers to Immunization***

- Continue to expand the availability of culturally and linguistically appropriate translation services.
- Continue funding for the Neighborhood Public Health Van.
- Continue to expand hours and outreach sites for immunization services.

### **Future Opportunities**

- **Link with other community agencies such as the Fire Department to encourage interest in immunizations and to promote immunization services at the neighborhood level, similar to the Phoenix, Arizona *Baby Shots Program*.**
- Working with the Medical Interpreters Advisory Board, translators will receive education on the importance of immunizations.
- Include The Way Home, the International Institute of NH, the Latin American Center, Lutheran Social Services and the Manchester Community Resource Center in the Manchester Immunization Group for Healthy Tots and Youth to identify and address barriers to immunizations for specific populations.

- Initiate focus groups representing families from racial, ethnic and socioeconomic minorities to assess the families ability to obtain health care and immunizations for their children and any barriers preventing access.
- Develop programs to provide door-to-door outreach to facilitate access to immunizations, linkages to health care and enrollment in the Healthy Kids Program similar to *the Browning Health Ambassador Program* in Norfolk, Virginia.
- The Manchester Health Department will convey information to the medical community on an annual basis regarding immunization coverage rates and the results of the focus groups identifying barriers to immunization.
- Health care providers will work with their peers within the medical community to resolve barriers to immunization; health care providers will be encouraged to identify one contact person per agency for immunization issues.
- Provide incentives for families seeking preventive health services, such as immunizations.
- Address transportation barriers by providing bus and/or taxi vouchers for families; encourage business communities to participate as corporate sponsors.
- **In addition to assessments and education, explore the feasibility of providing immunization services at childcare agencies.**

### ***Educate Families, Health Care Providers and Professionals who Work With Children and Families about Vaccines and Vaccine-Preventable Diseases***

- Continue to seek groups and health professionals who would benefit from education on immunization.
- Continue working with local health care providers to disseminate information on vaccines, vaccine safety, availability and management and changes in the recommended schedule; access opportunities to reach a large number of providers at pediatric grand rounds.
- Continue to provide immunization education to the childcare agencies and health care provider's who report low immunization coverage rates.
- Sustain physician representation on MIGHTY.
- **Continue to provide immunization messages within newborn packets including information on the importance of vaccines, sites providing immunization services, the current immunization schedule and the Healthy Kids Program to promote linkages to health care.**

### ***Future Opportunities***

- Work with local academia in increasing the awareness of immunization among students pursuing a career within the health care arena.

- Educate maternal and child health practitioners in regard to the epidemiology and prevention of vaccine-preventable diseases, the recommended childhood immunization schedule and current immunization practices.
- Enhance linkages with the Manchester School Department, WIC, Medicaid case workers, Our Place, prenatal education classes, Child and Family Services, local hospitals, the Visiting Nurse Association and homeless shelters to promote education on the importance of immunizations.
- Develop toolkits for health care providers similar to the *Make Every Visit Count kit*, which was developed by the Arizona Partnership for Infant Immunization.
- Provide immunization education for new arrivals to Manchester through linkages with the International Institute of NH, Lutheran Social Services, Latin American Center, Manchester Community Resource Center and ESL classes.
- Provide health care providers with an annual newsletter providing up-to-date immunization information modeled on *Immunization Pearls*, which is released by the Dane County Immunization Coalition in Madison, Wisconsin.

***Assess Immunization Coverage Rates and Promote Optimal Immunization of all Children, Especially in Those Areas Identified as Having the Lowest Rates***

- Expand the existing Shots by Two reminder/recall program.
- Continue with the school-based retrospective surveys; share data with the community to determine areas of greatest need
- Continue CASA immunization assessments at the offices of local health care providers.
- Continue immunization assessments at the largest child care agencies within the community.
- Continue to identify outreach sites within the areas of greatest need for van and outreach immunization clinic sites.
- Continue and strengthen State and local surveillance efforts on immunization practices and vaccine-preventable diseases

**Future Opportunities**

- Develop a statewide immunization registry to facilitate up to date immunizations of children and improve statewide immunization assessment capability.
- Utilize Community Health Workers or outreach workers to promote referrals to the Healthy Kids Program at immunization clinics and outreach sites.

- Develop community-based reminder/recall programs, modeled on the *Missed Immunization Appointment Program*, which was developed by the Richland Lexington Immunization Coalition, Columbia, South Carolina.
- Link with immunization providers and the WIC Program to assess immunization coverage rates and provide incentives such as the *Bring a Book-Get a Book Program* offered by the Massachusetts WIC Program.

## **Additional Information**

### **Additional Information on Immunization**

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NH Department of Health and Human Services  
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6 Hazen Drive  
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1-800-852-3345 Ext. 4482  
[www.dhhs.state.nh.us](http://www.dhhs.state.nh.us)

Centers for Disease Control and Prevention  
Atlanta, GA  
[www.cdc.gov](http://www.cdc.gov)  
  
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